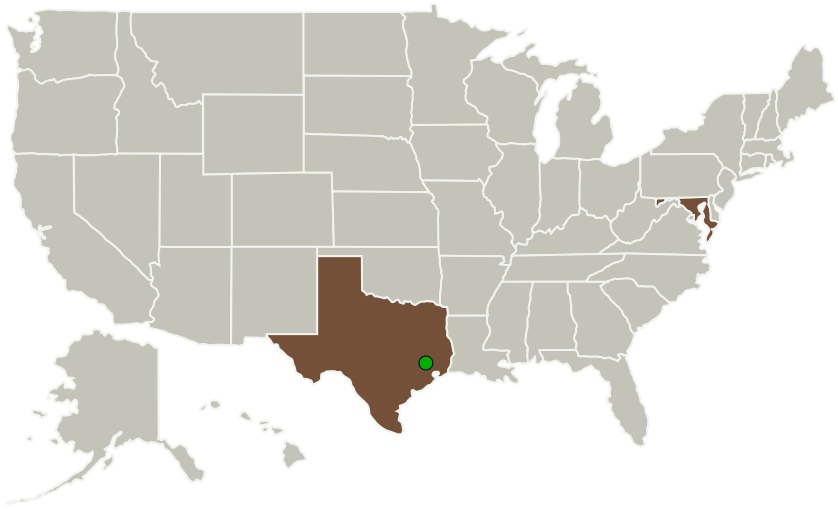
Nanorack Compatible Standardized Data Processing, Communication, and Control Module, Phase I

Completed Technology Project (2011 - 2011)

Project Introduction

This Phase I study will design and develop a NanoRacks Control Module (NCM) that provides communications, control functions and data processing in a NanoRacks compatible CubeLab form factor. This standard module is intended to dramatically reduce the development time and cost for an experiment to be flown in a Nanoracks module. Certain aspects of a NanoRacks compatible experiment stay the same regardless of the type of experiment. The proposed NanoRacks Control Module provides communications compatible with the NanoRacks module. This includes methods for preparing data generated in the NanoRacks CubeLab module for download, as well as communications and commands to the NanoRacks CubeLab module. The NanoRacks Control Module is configurable by the user to generate and receive various signal and data types that may be required for the experiment. The NanoRacks Control Module has its own series of sensors that can provide baseline data about the experiment in process, such as vibration and temperature. In addition, the NCM has a battery operating mode that allows for the environment to be monitored before flight and attachment to the NanoRacks frame.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Entropy Engineering	Lead Organization	Industry	Gaithersburg, Maryland
Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas

Primary U.S. Work Locations	
Maryland	Texas

Project Transitions

February 2011: Project Start

September 2011: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/138342)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Entropy Engineering

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Steven Bress

Co-Investigator:

Steve Bress

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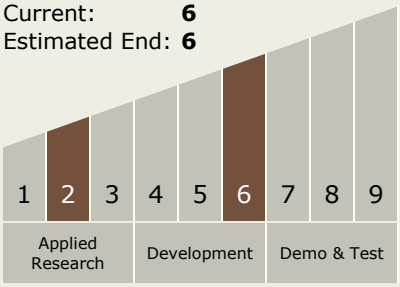
Technology Maturity (TRL)

Start: **2**
Current: **6**
Estimated End: **6**



Technology Areas

Primary:

- TX04 Robotic Systems
  - TX04.3 Manipulation
    - TX04.3.1 Dexterous Manipulation

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System